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SPECIFICATION FOR POWER MAIZE SHELLERS

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SPECIFICATION FOR POWER MAIZE SHELLERS

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(*Continued on page* 2)

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(*Continued on page* 8)

Indian Standard

SPECIFICATION FOR POWER MAIZE SHELLERS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 28 September 1973, after the draft finalized by the Agricultural Machinery and Tractors Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Separation of grains by beating the cobs with hand has been the traditional method for shelling of maize from very early times. Since the output by this method is low and cost of operation is high, power maize shellers are now being extensively used and are replacing traditional method. A need was, therefore, felt for preparing of an Indian Standard on this subject for the guidance of users and manufacturers.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies the material, performance and other requirements for power maize shellers.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 7052-1973† shall apply.

3. TYPES

3.1 On the basis of shelling unit, the shellers shall be of the following two types:

a) Disc type, and

b) Cylinder type.

---

*Rules for rounding off numerical values (*revised*).

†Test code for power maize shellers.

3.2 On the basis of method of feeding, the shellers shall be of the following two types:

a) Hopper fed, and

b) Conveyor fed.

4. MATERIAL

4.1 Steel and cast iron shall be generally used for the manufacture of different components of the sheller. The material should conform to the relevant Indian Standards, as far as possible. For guidance some of the relevant Indian Standards are given in Appendix A.

5. PERFORMANCE REQUIREMENTS

5.1 Total losses shall not exceed 4 percent in which cracked and broken grains shall be not more than 1·5 percent.

5.2 Shelling efficiency shall be not less than 99 percent.

5.3 Cleaning efficiency shall be not less than 97 percent.

5.4 Input capacity per kWh shall be not less than 5 quintals of cobs.

5.5 Corrected output capacity shall be not less than 36 percent of the input capacity.

6. OTHER REQUIREMENTS

6.1 The construction shall be rigid and strong.

6.2 The bearings, plumber blocks, keys, belts and pulleys should, as far as possible, conform to relevant Indian Standards. A list of such standards is given in Appendix B.

6.3 Bearings shall be adequately protected against the ingress of dust.

6.4 Arrangements for belt tightening and lubrication of moving parts shall be made.

6.5 Shelling cylinder or disc shall be statically balanced.

6.6 Sieves shall be capable of easy cleaning and replacement.

6.7 Concave clearance, air displacement, screen pitch and sieve clearance shall, as far as possible, be adjustable.

6.8 Each sheller shall be provided with instruction manual containing full information on method of installation and operation of sheller. It shall also contain the information regarding maintenance, ordering replacement of parts and safety precautions.

7. WORKMANSHIP AND FINISH

7.1 The sheller shall be finished in such a manner that it shall be free from defects that may be detrimental for its use. The welding shall be satisfactory in all respects and should not be brittle or porous.

7.2 All exposed metallic surfaces shall be free from rust and shall be painted properly.

8. ACCESSORIES

8.1 The following accessories shall be supplied along with the sheller:

a) Flexible coupling or pulley
b) Belts,
c) Oil lubricator or grease cups, and
d) Set of tools.

8.2 The following accessories may be supplied on the request of the purchaser:

a) Cylinder or disc,
b) Concave, and
c) Sieves.

9. TESTS

9.1 At least one sheller of each type shall be tested for type testing. Once a sheller has undergone type tests, any major or essential alterations, which the manufacturer intends to make, shall be reported to the testing authority and further type test shall be carried out.

9.2 Each sheller of a type shall be tested for routine tests.

9.3 The method of type and routine testing shall be as given in IS : 7052-1973*.

10. MARKING AND PACKING

10.1 Each sheller shall be marked with the following information at a prominent place:

a) Manufacturer's name and trade-mark, if any;
b) Model code and batch number;
c) Cylinder or disc size;
d) Recommended input capacity;

---

*Test code for power maize shellers.

e) Direction of rotation of shelling unit and recommended rev/min; and

f) Recommended power requirement.

10.1.1 Each sheller may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

10.2 Packing — The sheller and its components shall be packed as agreed to between the purchaser and the supplier, to avoid damage in transit.

APPENDIX A

(*Clause* 4.1)

LIST OF RELEVANT INDIAN STANDARDS FOR STEEL AND CAST IRON

IS : 210-1970	Grey iron castings (*second revision*)
IS : 226-1969	Structural steel (standard quality) (*fourth revision*)
IS : 277-1969	Galvanized steel sheets (plain and corrugated) (*second revision*)
IS : 280-1962	Mild steel wire for general engineering purposes (*revised*)
IS : 808-1964	Rolled steel beam, channel and angle sections (*revised*)
IS : 1730-1961	Dimensions for steel plate, sheet and strip for structural and general engineering purposes
IS : 1731-1971	Dimensions for steel flats for structural and general engineering purposes (*first revision*)
IS : 1732-1971	Dimensions for round and square steel bars for structural and general engineering purposes (*first revision*)

APPENDIX B

(*Clause* 6.2)

LIST OF RELEVANT INDIAN STANDARDS ON BEARING, PLUMBER BLOCK, ETC

IS : 529-1959	Solid-woven impregnated cotton belting for power transmission (*revised*)
IS : 1691-1968	Cast iron and mild steel flat pulleys (*first revision*)
IS : 2292-1963	Taper keys and keyways
IS : 2293-1963	Gib-head keys and keyways
IS : 2294-1963	Woodruff keys and keyslots
IS : 2494-1964	V-belts for industrial purposes
IS : 2513-1963	Boundary dimensions for rolling bearings for general engineering purposes
IS : 3142-1965	V-grooved pulleys for V-belts — groove sections A, B, C, D and E
IS : 3697-1966	Boundary dimensions for tapered roller bearings
IS : 4773-1968	Plumber blocks for rolling bearings

(*Continued from page* 2)

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INDIAN STANDARDS

ON

AGRICULTURAL MACHINERY AND TRACTORS

IS:	
619-1961	Pruning knives, hooked and curved (*revised*)
621-1957	Forks for plantations and estates
1511-1968	Light duty chaff cutter blades (*first revision*)
1973-1973	Sugarcane crushers (*first revision*)
1976-1969	Rotary paddy weeder (*first revision*)
2192-1962	Mouldboard plough, turnwrest type
2226-1962	Mouldboard plough, fixed type
2238-1962	Transplanting spade and *SEPRANG*
2559-1963	Garden rake
2563-1963	Hedge shears, straight-edge type
2564-1963	Blade harrow, *GUNTAKA* type
2565-1963	Ridger, animal drawn
3092-1965	Rubber draining and tapping knife
3093-1965	Dah, jungle cutting
3094-1965	Bill-hook
3108-1965	Pruning saw, straight and curved
3122-1965	Budding and grafting knife, combined
3155-1965	Thresher, *OLPAD* type
3185-1965	‘V’ Blade hand hoe
3292-1965	Three-tined hand hoe, fixed type
3293-1965	Levelling *KARAHA* (*KENI*), animal drawn
3301-1965	Green manure trampler, animal drawn
3310-1965	Single row cotton seed drill, animal drawn
3327-1965	Paddy thresher, pedal operated
3342-1965	*TRIPHALI* (three-tined cultivator), animal drawn
3350-1965	Three-tined cultivator with seeding attachment, animal drawn
3360-1965	Soil scoop
3363-1965	Harrow *PATELA*
3369-1965	Puddler, animal drawn
3372-1965	Bund former
3467-1966	Wheel hand hoe
3494-1966	Pruning secateur
3606-1972	Disc harrow, animal drawn (*first revision*)
3939-1967	Hand maize sheller
4358-1967	Sickles
4366 (Part I)-1972	Agricultural tillage discs : Part I Concave type (*first revision*)
4366 (Part II)-1972	Agricultural tillage discs : Part II Flat type (*first revision*)

4468-1967	Dimensions for three-point linkage of agricultural wheeled tractors
4930-1968	Guide for axle assembly for animal drawn vehicles
4931-1968	Power take-off shafts of agricultural tractors
5718-1970	Test code for air-screen seed cleaners
5994-1970	Test code for agricultural tractors
6023-1970	Reversible shovel
6024-1970	Guards for grain harvesting machines
6025-1970	Knife sections for grain harvesting machines
6283-1971	Symbols for operator controls on agricultural tractors and farm machinery
6284-1971	Test code for stationary power thresher for wheat
6288-1971	Test code for mouldboard ploughs
6316-1971	Test code for seed-cum-fertilizer drill
6320-1971	Wheat power thresher (hammer mill type)
6327-1971	One-way animal drawn mouldboard plough shares
6451-1972	Sweep
6459-1972	Two-way animal drawn mouldboard plough shares
6460-(Part 1)-1972	Ball and socket assembly for three-point linkage : Part 1 Ball
6483-1972	Linch pin assembly
6635-1972	Tractor operated disc harrows
6638-1972	Spring-loaded tractor-mounted cultivators
6690-1972	Blade for rotavators
6813-1973	Seed-cum-fertilizer drills
6816 (Part I)-1973	Fluted feed roller type seed metering mechanism : Part I Seed feed rollers
6816 (Part II)-1973	Fluted feed roller type seed metering mechanism : Part II Seed feed cut-off
6816 (Part III)-1973	Fluted feed roller type seed metering mechanism : Part III Retaining ring and cover
6816 (Part IV)-1973	Fluted feed roller type seed metering mechanism : Part IV Seed feed cup
6817 (Part I)-1973	Plate type seed metering mechanism : Part I Seed plates
6817 (Part II)-1973	Plate type seed metering mechanism : Part II Seed feed roller
6840-1972	Code of practice for preventive maintenance of agricultural wheeled tractor
6847-1972	Code of practice for installation of agricultural wheeled tractor